Amendments to the Claims

The following Listing of Claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A method of assessing image quality, comprising:

detecting a target object region in an input image, wherein the detecting is performed on image data derived solely from the input image without regard to image data derived from any image other than the input image and the detecting comprises determining that the target object region comprises a target object;

generating an image quality feature vector representing the target object region in an image quality feature space, wherein the generating comprises generating the image quality feature vector from image data derived solely from the input image without regard to image data derived from any image other than the input image; ~~and~~

mapping the image quality feature vector to a measure of image quality based on a classification model that correlates image quality feature vectors with respective image quality values; and

outputting a quantitative assessment of quality of the input image based on the measure of image quality.

Claim 2 (previously presented): The method of claim 1, wherein the detecting comprises detecting a human face in the input image.

Claim 3 (previously presented): The method of claim 1, wherein the detecting comprises detecting an object relevant to a person's subjective assessment of image quality in the input image.

Claim 4 (previously presented): The method of claim 1, wherein the detecting comprises detecting the target object region based on a sub-sampled version of the input image.

Claim 5 (previously presented): The method of claim 4, wherein the generating comprises generating the image quality feature vector based on a version of the target object region at a resolution of the input image.

Claim 6 (previously presented): The method of claim 1, wherein the detecting comprises detecting the target object region based on a first set of features of the input image, and the generating comprises generating the image quality feature vector based on a second set of features of the input image different from the first set of features.

Claim 7 (original): The method of claim 6, wherein the first set of features is substantially decoupled from the second set of features.

Claim 8 (original): The method of claim 1, wherein the image quality feature space is spanned by multiple features including at least one brightness feature describing a respective brightness characteristic of the target object region.

Claim 9 (original): The method of claim 1, wherein the image quality feature space is spanned by multiple features including at least one spectral feature describing a respective spatial frequency characteristic of the target object region.

Claim 10 (original): The method of claim 9, wherein generating the image quality feature vector comprises decomposing the target object region into multiple wavelet transform sub-bands.

Claim 11 (original): The method of claim 10, wherein each spectral feature describes energy in a respective wavelet transform sub-band.

Claim 12 (original): The method of claim 1, wherein the image quality feature space is spanned by multiple features including at least one noise feature describing a respective noise characteristic of the target object region.

Claim 13 (previously presented): The method of claim 12, wherein the generating comprises computing the noise feature based on a measure of noise in the target object region.

Claim 14 (previously presented): The method of claim 12, wherein the generating comprises computing the noise feature based on a measure of spatial homogeneity of spectral features each describing a respective spatial frequency characteristic of the target image region.

Claim 15 (previously presented): The method of claim 1, wherein the mapping comprises mapping the image quality feature vector to a measure of image quality in accordance with a machine learning based classification process.

Claim 16 (previously presented): The method of claim 15, wherein the mapping comprises mapping the image quality feature vector to a measure of image quality in accordance with a radial basis function based machine learning process.

Claim 17 (previously presented): The method of claim 15, wherein the mapping comprises mapping the image quality feature vector to a measure of image quality in accordance with a mixture of Gaussian based machine learning process.

Claim 18 (currently amended): A system for assessing image quality, comprising computing hardware operable to perform operations comprising:

~~a target object region detection module operable to detect~~detecting a target object region in an input image~~, wherein the target object region detection module detects the target object region~~ based on image data derived solely from the input image without regard to image data derived from any image other than the input image, wherein in the detecting the computing

hardware is operable to perform operations comprising determining that the target object region comprises a target object;

~~a feature extraction module operable to generate~~generating an image quality feature vector representing the target object region in an image quality feature space~~, wherein the feature extraction module generates the image quality feature vector~~ based on image data derived solely from the input image without regard to image data derived from any image other than the input image;~~ and~~

~~an image quality assessment module operable to map~~mapping the image quality feature vector to a measure of image quality based on a classification model that correlates image quality feature vectors with respective image quality values; and

outputting a quantitative assessment of quality of the input image based on the measure of image quality.

Claim 19 (previously presented): The system of claim 18, wherein in detecting the target object region the target object region detection module performs a human face detection process on the input image.

Claim 20 (original): The system of claim 18, wherein the feature extraction module detects the target object region based on a sub-sampled version of the input image.

Claim 21 (original): The system of claim 18, wherein the image quality feature space is spanned by multiple features including at least one brightness feature describing a respective brightness characteristic of the target object region.

Claim 22 (original): The system of claim 18, wherein the image quality feature space is spanned by multiple features including at least one spectral feature describing a respective spatial frequency characteristic of the target object region.

Claim 23 (original): The system of claim 22, wherein the feature extraction module is operable to generate the image quality feature vector by decomposing the target object region into multiple wavelet transform sub-bands.

Claim 24 (original): The system of claim 23, wherein each spectral feature describes energy in a respective wavelet transform sub-band.

Claim 25 (original): The system of claim 18, wherein the image quality feature space is spanned by multiple features including at least one noise feature describing a respective noise characteristic of the target object region.

Claim 26 (previously presented): The system of claim 25, wherein the feature extraction module computes the noise feature based on a measure of noise in the target object region.

Claim 27 (previously presented): The system of claim 25, wherein the feature extraction module computes the noise feature based on a measure of spatial homogeneity of spectral features each describing a respective spatial frequency characteristic of the target image region.

Claim 28 (previously presented): The system of claim 18, wherein the image quality assessment module maps the image quality feature vector to a measure of image quality in accordance with a machine learning based classification process.

Claim 29 (original): The system of claim 28, wherein the image quality assessment module maps the image quality feature vector to a measure of image quality in accordance with a radial basis function based machine learning process.

Claim 30 (original): The system of claim 28, wherein the image quality assessment module maps the image quality feature vector to a measure of image quality in accordance with a mixture of Gaussian based machine learning process.

Claim 31 (canceled)

Claim 32 (currently amended): A computer-readable medium storing computer-readable instructions for causing a computer to perform operations comprising:

detecting a target object region in an input image~~, wherein the computer-readable instructions cause the computer to detect the target object region~~ based on image data derived solely from the input image without regard to image data derived from any image other than the input image, wherein in the detecting the computer-readable instructions cause the computer to perform operations comprising determining that the target object region comprises a target object;;

generating an image quality feature vector representing the target object region in an image quality feature space~~, wherein the computer-readable instructions cause the computer to generate the image quality feature vector~~ based on image data derived solely from the input image without regard to image data derived from any image other than the input image; and

mapping the image quality feature vector to a measure of image quality based on a classification model that correlates image quality feature vectors with respective image quality values; and

outputting a quantitative assessment of quality of the input image based on the measure of image quality.

Claim 33 (currently amended): A method of generating an image quality assessment engine, comprising:

for each of multiple input images

detecting a respective target object region in a respective one of the input images~~,~~ ~~wherein the detecting is performed~~ based on image data derived solely from the respective input image without regard to image data derived from any image other than the respective input image, wherein the detecting comprises determining that the target object region comprises a target object, and

generating a respective image quality feature vector representing the respective target object region in an image quality feature space, wherein the generating comprises generating the respective image quality feature vector from image data derived solely from the respective input image without regard to image data derived from any image other than the respective input image;

correlating the image quality feature vectors with respective measures of image quality assigned to the input images; ~~and~~

~~computing~~ determining a mapping between image quality feature vectors and the assigned measures of image quality; and

storing the mapping as computer-readable instructions on a computer-readable medium.

Claim 34 (previously presented): The method of claim 33, wherein for each respective one of the input images the detecting comprises detecting a human face in the respective input image.

Claim 35 (original): The method of claim 33, wherein the image quality feature space is spanned by multiple features including at least one brightness feature describing a respective brightness characteristic of the target object region.

Claim 36 (original): The method of claim 33, wherein the image quality feature space is spanned by multiple features including at least one spectral feature describing a respective spatial frequency characteristic of the target object region.

Claim 37 (currently amended): The system of claim 18, ~~further comprising~~wherein the computing hardware comprises a computer-readable storage medium and a computer processor.

Claim 38 (new): The method of claim 1, wherein the determining comprises classifying each of multiple regions of the input image into one of a target object region class and a false alarm class.

Claim 39 (new): The method of claim 1, wherein the classification model captures a functional relationship between the image quality feature vectors and quantitative assessments of image quality assigned to training images.